UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,428	11/30/2004	Francis Chi	550/9-2011	4964

28156 7590 09/22/2008

COLEMAN SUDOL SAPONE, P.C.
714 COLORADO AVENUE
BRIDGE PORT, CT 06605-1601

EXAMINER	
SZPERKA, MICHAEL EDWARD	
ART UNIT	PAPER NUMBER
1644	
MAIL DATE	DELIVERY MODE
09/22/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/516,428	CHI ET AL.	
	Examiner	Art Unit	
	Michael Szperka	1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 May 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30,34,35 and 37-43* is/are pending in the application.

4a) Of the above claim(s) *1-23,27,28 and 43* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *24-26, 29, 30, 34, 35, and 37-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's response and amendments received May 16, 2008 are acknowledged.

Claims 31-33 and 36 have been canceled.
Claim 24 has been amended.
Claims 1-30, 34, 35, and 37-43 are pending in the instant application.
Claims 1-23, 27, 28, and 43 stand withdrawn from consideration as being drawn to nonelected inventions and species. See 37 CFR 1.142(b) and MPEP § 821.03, for reasons of record set forth in the restriction requirement mailed October 11, 2005.

Claims 24-26, 29, 30, 34, 35, and 37-42 are under examination as they read on administering antibodies that bind adipocyte plasma membranes to reduce adipose tissue content.

The declaration of co-inventor Tianshui Lu under 37 CFR 1.132 is acknowledged. The statements made in this declaration to support applicant's arguments that the instant claimed invention is non-obvious will be addressed with the rejections of record.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the

various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 25 and 26 stand rejected under 35 U.S.C. 103(a) as being obvious over Flint (US Patent No. 5,102,658, of record as reference AB on the IDS received 3/4/05, see entire document) in view of Cryer et al. (US Patent 5,631,009) and in view of Lee (US patent No. 5,367,054, see entire document) for the reasons of record.

The office action mailed January 16, 2008 states:

> Flint discloses methods of administering antibodies raised against adipocyte plasma membranes to target animals in order to decrease adipose tissue mass in the target animal (see entire document, particularly the abstract, claims 1-3, and lines 19-23 of column 1). He further discloses that the administered antibodies can be made in an animal that is evolutionarily removed from the target animal in which a decrease in adipose tissue is desired (see particularly lines 26-30 of column 1 and Example C). Note that in working example C, rats were administered anti-rat adipocyte plasma membrane polyclonal antibodies that had been made in sheep. Particularly desirable target animals for the treatment methods taught by Flint include humans, lambs, cows, and pigs (see particularly lines 19-23 of column 1 and claim 3). He further discloses that use of hybridoma technology allows for the large scale production of antibodies without the need for serum donors (see particularly lines 48-50 of column 1).
>
> This disclosure differs from the instant claimed invention in that Flint does not specifically mention that egg laying animals are to be used to produce anti-adipocyte antibodies and Flint does not indicate that anti-adipocyte antibodies are to be orally administered.
>
> Cryer et al. disclose methods for reducing body fat in animals by administering antibodies specific for adipocyte membranes (see entire document, particularly the abstract). Anti-adipocyte antibodies are disclosed as being passively administered by a variety of routes, including oral administration (see particularly lines 40-44 of column 4).
>
> Lee discloses methods of producing large quantities of IgY antibodies from the yolk of chickens and other egg-laying animals such as reptiles, amphibians and fish (see entire document, particularly the abstract, lines 5-10 of column 1, and claims 1-15). Antibodies produced in eggs enjoy the advantages of increased specificity against mammalian proteins, low cost, convenience, and compatibility with animal welfare regulations (see particularly lines 34-47 of column 1). Additional advantages of egg yolk antibodies are that they can be easily administered in food and in other compositions suitable for oral ingestion (see particularly lines 29-33 of column 1 and lines 30-40 of column 3).
>
> Therefore, a person of ordinary skill in the art at the time the invention was made would have been motivated to administer anti-adipocyte plasma membrane antibodies to a target animal to reduce adipose tissue mass in the target animal as taught by Flint by an oral route because Cryer et al. disclose that anti-adipocyte antibodies are to be administered via an oral route to reduce adiposity. A person of ordinary skill in the art would have been further motivated to make such anti-adipocyte antibodies in egg laying animals, such as chickens, due to the advantages of high yield, low cost, increased specificity , and ability to be added to food for increased ease of administration as was disclosed by Lee. Note also that alterations in dosages, amounts, and timings of administered agents are routinely performed by ordinary artisans for the purpose of

maximizing the therapeutic efficacy of any given treatment method. Further, the courts have held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F2d 454,456,105 USPQ 233; 235 (CCPA 1955) and MPEP § 2144. For all of the above reasons, the instant claimed methods would have been prima facie obvious to a person of ordinary skill in the art at the time the instant invention was made.

Applicant's arguments filed October 25, 2007 have been fully considered but they are not persuasive. Applicant argues that Flint does not disclose oral administration of anti-adipocyte antibodies.

Cryer et al. disclose that anti-adipocyte antibodies are to be administered orally.

Applicant next argues that Flint teaches away from the use of egg laying animals.

This argument is not persuasive. The disclosure of Flint is not limited to his working examples as applicant appears to be arguing. Claim 1 of Flint is not limited to administration of donor serum, and the specification clearly discloses hybridoma technology as an alternate source of large quantities of antibody for use in his methods. Lee discloses that large quantities of antibodies can be obtained from the yolk of eggs obtained from immunized egg laying animals, such as chickens. As such, a person of ordinary skill in the art would know from Flint's disclosure that large amounts of antibodies are needed to perform his methods and that large amounts of antibodies can be obtained from eggs as was disclosed by Lee.

Applicant also argues that a person of ordinary skill in the art would not combine the references because they are not analogous art, specifically that Flint discloses treatment methods whereas Lee discloses antibody purification.

This argument is not persuasive. The skill of an ordinary artisan in the biological sciences is quite high, with most practitioners holding advanced degrees such as an M.D. or Ph.D. degree. Such ordinary artisans who were practicing methods of antibody administration would be well versed in how antibodies can be made (since they obviously need to know how to make antibodies such that they can administer them) from a variety of sources and would not assume that only serum form donor animals would work. Indeed, as has been previously discussed, Flint explicitly discloses hybridoma technology as another means to produce the antibodies in his method. All of the cited references are readily within the purview and understanding of the ordinary artisan and as such would be readily combined by said ordinary artisan.

Applicant's final argument is that the examiner has improperly dismissed the effectiveness of orally ingested antibodies as was presented in Experiment II of the instant specification because a skilled artisan would not expect such a method to work at all.

This argument is not persuasive. As was stated in the prior office action, the evidence of Experiment II was considered but was not considered to be an effective secondary consideration to overcome the finding of legal obviousness. As was previously stated:

> It appears that applicant is arguing unexpected results based upon the data presented in the specification as Experiment II beginning on page 25. In this experiment, rats were administered antibodies specific for pig adipocytes wherein the antibodies were produced in the egg of a chicken. The data indicate that rats that were orally administered antibody lost more weight than rats receiving antibody subcutaneously.
>
> The reason that applicant's argument of unanticipated results is not persuasive is because a demonstration of unexpected results must be commensurate in scope with that which is being claimed. In the instant situation, the claimed methods are not limited to the precise conditions disclosed in Experiment II, and thus the claimed methods are broader in scope than the experiment. If the results of experiment II are "unexpected", a skilled artisan would not reasonably expect that other conditions, such as the use of other source and target animals, or the use of antigen preparations prepared from other animals or prepared using methodologies other than the exact protocol used in the disclosed experiment, would have the same "unexpected" outcome. Further, the instant claimed methods do not recite any standard of efficacy, and as such the efficacy of oral

versus subcutaneous administration is not particularly relevant since the claims have been rejected based upon the obviousness of orally administering anti-adipocyte antibodies made in eggs.

Note further that based upon the disclosure of Cryer et al., it is not unexpected that orally administered anti-adipocyte antibodies would work since Cryer et al. disclose oral administration as one of their treatment modalities.

Applicant's arguments filed May 16, 2008 have been fully considered but they are not persuasive. Applicant's first argument is that independent claim 24 has been amended to recite that egg yolk rather than purified IgY antibodies are administered and that Lee et al. disclose administration of purified rather than crude IgY.

This argument is not persuasive because dependent claim 25 recites purification of the IgY from yolk.

Applicant next argues that the art cited by the examiner teaches away from the claimed invention, and points to the declaration of co-inventor Tianshui Lu to support this argument.

This argument is not persuasive. First, as an inventor Tianshui Lu is not a disinterested third party in the outcome of prosecution, and all statements made in the declaration have been considered in this light. Second, the determination of obviousness is a legal, rather than scientific, matter, and Tianshui Lu does not appear to have any legal training which would allow him to formulate an informed opinion concerning the obviousness of the instant claimed invention. Third, it appears that Tianshui Lu believes the disclosure of the prior art documents to be limited in scope to that to the working examples, rather than to the entirety of their specifications and what these specifications, taken as a whole would reasonably suggest to a person of ordinary skill in the art. Working examples serve as examples to demonstrate a particular embodiment of an invention, not the entirety of inventions disclosed by the specification as a whole. Indeed, the working examples of the instant specification comprise the administration of IgY specific for porcine adipocytes to rats. Note that if applicant's characterization of the prior art was accurate, the disclosure of the instant specification could not support anything more than the administration of IgY specific for porcine adipocytes to rats.

More specifically, it is argued that Flint is limited to immunizing sheep with rat fat cell membranes, and that the antibodies must be purified sheep immunoglobulin.

This is not persuasive because as stated in the rejection of record, the disclosure of Flint is broader than the working example in that Flint explicitly contemplates treatment of other animals, including humans, with anti-adipocyte antibodies, and that other animals can be used for production of polyclonal antibodies.

It is argued that "Cryer et al. only further proves the novelty and non-obviousness of the invention, as Cryer is also strictly concerned with the isolation and purification of Porcine adipocyte antigens, as illustrated in claim 1" and that "the favored proposed route of administration for active immunization is by subcutaneous injection".

This argument is not persuasive because the disclosure of a patent is not limited to the claims. Further, passive administration of antibodies specific for adipocytes is explicitly disclosed by Cryer et al., see lines 40-44 of column 4.

Applicant also argues that Lee (along with Flint and Cryer et al.) disclose that purified antibodies must be used for passive administration in that Lee discusses at length how IgY is to be purified from egg yolk.

This argument is not persuasive because the claims recite purified egg yolk antibodies.

The rejection is maintained.

The following are new grounds of rejection necessitated by the claim amendments received May 16, 2008.

4. Claims 24, 29, 30, 34, 35, and 37-42 are rejected under 35 U.S.C. 103(a) as being obvious over Flint (US Patent No. 5,102,658, of record as reference AB on the IDS received 3/4/05, see entire document) in view of Cryer et al. (US Patent 5,631,009) and in view of Lee (US patent No. 5,367,054, see entire document) as applied to claims 25 and 26 above, and further in view of Pimentel (US 5,741,489).

The disclosures of Flint, Cryer et al., and Lee have been discussed above and differ from the instant claimed invention in that they do not disclose administration of IgY in a crude state, i.e. administration of egg yolk rather than antibodies that have been purified from egg yolk.

Pimentel discloses working examples wherein egg yolk comprising antigen specific antibodies was successfully administered to experimental animals in their feed without first purifying the IgY antibodies (see entire document, particularly lines 6-8 of column 2 and Examples 6 and 7). Pimentel also discloses administration of egg yolk that has been diluted with water and filter to remove excess fat prior to administration in animal feed (Examples 2, 4, and 5).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the instant invention was made to administer IgY antibodies in an unpurified state based upon the working example of Pimentel wherein both unpurified and minimally purified IgY was successful used in to passively immunize animals.

Applicant's arguments and the statement in the declaration of Tianshui Lu that a person of ordinary skill in the art "would be quite surprised that a low cost, simple, high volume production of an ingestible composition, that can be added to a standard animal feed for ease in administration could actually work" is not persuasive because Pimentel discloses adding low cost, simple, high volume eggs and egg products comprising antigen specific antibodies in animal feed that actually works.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 25 and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, the independent claim recites administration of egg yolk which contains antigen specific IgY antibodies. Dependent claims 25 and 26 indicate that the egg yolk antibodies (i.e. IgY) are isolated from the egg yolks. Since the independent claim clearly recites administering egg yolk, it is not clear how a person or ordinary skill would perform the claimed method since if the antibodies are purified from the yolk, there is no yolk left for administration, or alternatively, if the yolk has been administered, there is no material left from which IgY can be isolated. Another interpretation of the claims is that the isolated antibodies, rather than whole egg yolk are what is administered. Note that such an interpretation does not follow the method steps recited in the independent claim. Thus, to provide proper antecedent basis applicant may either cancel the dependent claims, amend the dependent claims to make them independent claims, or amend the independent claim to provide proper antecedent basis for the additional method steps recited in the dependent claims.

8. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Szperka whose telephone number is (571)272-2934. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen O'Hara can be reached on 571-272-0878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael Szperka, Ph.D.
Primary Examiner
Art Unit 1644

/Michael Szperka, Ph.D./
Primary Examiner, Art Unit 1644